

FIG. 1A

TCTAGATCTA GCTGGTGTGT CTCTGATCTT GCTTCTTTTC TCCCAGCCCT 50

TCCTACTTGT GTGAGAACAA GGTTTGTGAGC CATGGAGCAA AGAGGTTGGA 100

CTCTGCAGTG TACTGCTTTC GCCTTCTTTT GCGTTTGGTG TGC ACTAAGC 150

AGTGTA AAAAG CAAAGAGGCA GTTTGTTAAT GAATGGGCGG CGGAGATCCC 200

CGGAGGGCAA GAAGCTGCCT CTGCCATCGC CGAAGA ACTG GGGTATGACC 250

TTTTGGGTCA GATTGGATCA CTTGAAAATC ACTATTTATT CAAACACAAA 300

AGCCATCCTC GGAGGTCCCG AAGAAGCGCT CTTCATATCA CTAAGAGGTT 350

ATCTGATGAT GATCGTGTGA CGTGGGCTGA ACAACAGTAT GAAAAAGAGA 400

GAAGTAAACG TTCAGTTCAA AAAGACTCAG CATTGGATCT CTTCAATGAT 450

CCAATGTGGA ATCAGCAGTG GTACTTGCAA GATACCAGAA TGACTGCAGC 500

TCTGCCCAAG CTGGACCTTC ATGTAATACC TGTTTGGGAA AAGGGTATTA 550

CTGGCAAAGG AGTTGTTATT ACTGTACTGG ATGATGGCTT GGAGTGAAT 600

CACACAGACA TTTATGCCAA TTATGATCCA GAGGCTAGCT ATGATTTTAA 650

CGATAATGAT CATGATCCAT TTCCCCGATA TGATCTCACA AATGAAAACA 700

AACATGGAAC AAGATGTGCA GGTGAAATTG CCATGCAAGC AAATAATCAC 750

AAGTGTGGGG TTGGAGTTGC ATATAATTCC AAAGTTGGAG GCATAAGAAT 800

FIG. 1B

GCTGGATGGC ATTGTAAGT ATGCCATTGA GGCTAGTTCA ATTGGATTCA 850
ACCCTGGCCA TGTGGATATT TACAGTGCAA GCTGGGGCCC TAATGATGAT 900
GGAAAACTG TGGAGGGGCC TGGCAGACTA GCCCAGAAGG CATTTGAATA 950
TGGTGTCAAA CAGGGGAGAC AAGGGAAAGG CTCCATCTTT GTCTGGGCTT 1000
CAGGGAATGG GGGTCGTCAG GGAGATAACT GTGACTGTGA TGGCTACACA 1050
GACAGCATTT ACACCATCTC TATCAGCAGT GCCTCCCAGC AAGGCCTGTC 1100
ACCTTGGTAT GCAGAGAAGT GTTCTTCCAC ATTGGCTACC TCCTACAGCA 1150
GTGGTGATTA CACAGACCAG CGAATAACAA GCGCTGACCT GCACAATGAC 1200
TGCACAGAGA CCCACACAGG CACCTCGGCT TCAGCACCCC TGGCTGCTGG 1250
TATCTTTGCT CTGGCCTTGG AGGCAAACCC AAATCTTACC TGGAGAGATA 1300
TGCAGCATCT GGTGTCTGG ACCTCTGAGT ACGACCCATT GGCCAGTAAC 1350
CCAGGTTGGA AAAAGAATGG GGCAGGCTTG ATGGTGAACA GCCGATTTGG 1400
ATTTGGCTTG CTAAATGCCA AAGCTCTGGT GGATTTGGCT GATCCTCGGA 1450
CCTGGAGAAA TGTGCCTGAG AAGAAAGAAT GTGTTGTAAA AGACAATAAC 1500
TTTGAGCCTA GAGCCCTGAA AGCTAATGGA GAAGTAATTG TTGAAATCCC 1550
AACAAGAGCT TGTGAAGGAC AAGAAAATGC TATCAAGTCT CTGGAACATG 1600

FIG. 1C

ACACTCACTT CTGCTGTTGG AACCAGCACT GTACTGTTGG CTGAAAGGGA 1700

AAGAGATACA TCCCCCAATG GCTTTAAGAA TTGGGACTTC ATGTCTGTTC 1750

ATACATGGGG AGAGAATCCT GTAGGCACCT GGACATTGAA AATTACAGAC 1800

ATGTCTGGAA GAATGCAAAA TGAAGGAAGG ATTGTGAACT GGAAGTTGAT 1850

TTTGCATGGG ACATCTTCTC AACCAGAGCA CATGAAGCAG CCCC GTGTGT 1900

ACACATCCTA CAATACAGTC CAGAATGACA GGAGAGGAGT GGAAAAGATG 1950

CCTGGTACCC AAAA ACTCCA GCAGCAGCAA TGTGGAGGGT AGAAGGGATG 2050

AGCAGGTACA AGGAACTCCT TCAAAGGCCA TGCTGCGACT CCTACAAAGT 2100

GCTTTTAGCA AGAATGCACT TTCAAACAA TCACCAAAGA AGTCTCCAAG 2150

TGCAAAGCTC AGCATCCCTT ATGAAAGTTT CTATGAAGCC TTGGAAAAGC 2200

TTAACAAGCC CTCCAAGCTT GAAGGCTCTG AAGACAGTCT GTACAGTGAC 2250

TATGTTGATG TATTCTATAA CACAAAACCT TATAAGCATA GAGATGACAG 2300

GCTGCTGCAA GCTCTCATGG ACATCCTAAA TGAGGAGAAT TAAAATAAGG 2350

AGCTC 2355

FIG. 2A

TCTAGATGCA TCTTCCCTCT TCGTCCCCTG CTCCACCACC CTGCGCGCCT 50

CACAGCCCCG CTTTTCACCTC CCAAAGAAGG ATGGAGGGCG GTTGTGGATC 100

CCAGTGGAAG GCGGCCGGGT TCCTCTTCTG TGTGATGGTT TTTGCGTCTG 150

CCGAGAGACC CGTCTTCACG AATCATTTTC TTGTGGAGTT GCATAAAGAC 200

GGAGAGGAAG AGGCTCGCCA AGTTGCAGCA GAACACGGCT TTGGAGTCCG 250

AAAGCTCCCC TTTGCAGAAG GCCTGTATCA CTTTTATCAC AATGGGCTTG 300

CAAAGGCCAA AAGAAGACGC AGCCTACACC ATAAGCGGCA GCTAGAGAGA 350

GACCCCAGGA TAAAGATGGC GCTGCAACAA GAAGGATTTG ACCGTAAAAA 400

GAGAGGGTAC AGGGACATCA ATGAGATTGA CATCAACATG AATGATCCTC 450

TCCTTTACAAA GCAATGGTAC CTGTTCAACA CTGGGCAAGC CGATGGAACT 500

CCTGGGCTAG ACTTGAACGT GGCCGAAGCC TGGGAGCTGG GATACACAGG 550

AAAAGGAGTG ACCATTGGAA TTATGGATGA TGGAATTGAC TATCTCCACC 600

CAGACCTGGC CTACAACCTAC AACGCTGATG CAAGTTATGA CTTCAGCAGC 650

AATGACCCCT ACCCATACCC TCGATACACA GATGACTGGT TCAACAGCCA 700

TGGAACCTAGG TGTGCAGGAG AAGTTTCTGC TGCAGCCAGC AACAATATCT 750

GTGGAGTCGG CGTAGCATAC AACTCCAAGG TGGCAGGGAT CCGGATGCTG 800

GACCAGCCCT TTATGACAGA CATCATCGAA GCCTCCTCCA TCAGCCACAT 850

FIG. 2B

GCCTCAACTG ATCGACATCT ACAGTGCAAG CTGGGGCCCC ACAGACAATG 900

GGAAGACGGT TGATGGGCCC CGAGAGCTCA CACTCCAGGC CATGGCTGAT 950

GGCGTGAACA AGGGCCGTGG GGGCAAAGGC AGCATCTATG TGTGGGCCTC 1000

TGGGGACGGT GGCAGCTACG ATGACTGCAA CTGTGACGGC TATGCTTCAA 1050

GCATGTGGAC CATCTCCATC AACTCAGCCA TCAATGATGG CAGGACTGCC 1100

TTGTATGATG AGAGTTGCTC TTCCACCTTA GCATCCACCT TCAGCAATGG 1150

GAGGAAGAGG AATCCTGAGG CTGGTGTGGC TACCACAGAC TTGTATGGCA 1200

ACTGTACTCT GAGACACTCT GGGACATCTG CAGCTGCTCC GGAGGCAGCT 1250

GGCGTGTTTG CATTAGCTTT GGAGGCTAAC CTGGATCTGA CCTGGAGAGA 1300

CATGCAACAT CTGACTGTGC TCACCTCCAA GCGGAACCAG CTTCATGATG 1350

AGGTTCATCA GTGGCGACGG AATGGGGTTG GCCTGGAATT TAATCACCTC 1400

TTTGGCTACG GAGTCCTTGA TGCAGGTGCC ATGGTGAAAA TGGCTAAAGA 1450

CTGGAAAACT GTTCCGGAGA GATTCCATTG TGTGGGAGGC TCTGTGCAGA 1500

ACCCTGAAAA AATACCACCC ACCGGCAAGC TGGTACTGAC CCTCAAACA 1550

AATGCATGTG AGGGGAAGGA AAAC TTCGTC CGCTACCTGG AGCACGTCCA 1600

AGCTGTCATC ACAGTCAACG CGACCAGGAG AGGAGACCTG AACATCAACA 1650

FIG. 2C

TGACCTCCCC AATGGG¹CACC AAGTCCATTT TGCTGAGCCG GCGTCCCAGA 1700

GACGACGACT CCAAGGTGGG CTTTGACAAG TGGCCTTTCA TGACCACCCA 1750

CACCTGGGGG GAGGATGCCC GAGGGACCTG GACCCTGGAG CTGGGGTTTG 1800

TGGGCAGTGC ACCACAGAAG GGGTTGCTGA AGGAATGGAC CCTGATGCTT 1850

CACGGCACAC AGAGCGCCCC ATACATCGAT CAGGTGGTGA GGGATTACCA 1900

GTCTAAGCTG GCCATGTCCA AGAAGCAGGA GCTGGAGGAA GAGCTGGATG 1950

AGGCTGTGGA GAGAAGCCTG CAAAGTATCC TGAGAAAGAA CTAGGGCCAC 2000

GCTTCCGAAT TC 2012

FIG. 3A

Met	Glu	Gln	Arg	Gly	Trp	Thr	Leu	Gln	Cys	Thr	Ala	Phe	Ala	Phe	
1				5					10					15	
Phe	Cys	Val	Trp	Cys	Ala	Leu	Ser	Ser	Val	Lys	Ala	Lys	Arg	Gln	
				20					25					30	
Phe	Val	Asn	Glu	Trp	Ala	Ala	Glu	Ile	Pro	Gly	Gly	Gln	Glu	Ala	
				35					40					45	
Ala	Ser	Ala	Ile	Ala	Glu	Glu	Leu	Gly	Tyr	Asp	Leu	Leu	Gly	Gln	
				50					55					60	
Ile	Gly	Ser	Leu	Glu	Asn	His	Tyr	Leu	Phe	Lys	His	Lys	Ser	His	
				65					70					75	
Pro	Arg	Arg	Ser	Arg	Arg	Ser	Ala	Leu	His	Ile	Thr	Lys	Arg	Leu	
				80					85					90	
Ser	Asp	Asp	Asp	Arg	Val	Thr	Trp	Ala	Glu	Gln	Gln	Tyr	Glu	Lys	
				95					100					105	
Glu	Arg	Ser	Lys	Arg	Ser	Val	Gln	Lys	Asp	Ser	Ala	Leu	Asp	Leu	
				110					115					120	
Phe	Asn	Asp	Pro	Met	Trp	Asn	Gln	Gln	Trp	Tyr	Leu	Gln	Asp	Thr	
				125					130					135	
Arg	Met	Thr	Ala	Ala	Leu	Pro	Lys	Leu	Asp	Leu	His	Val	Ile	Pro	
				140					145					150	
Val	Trp	Glu	Lys	Gly	Ile	Thr	Gly	Lys	Gly	Val	Val	Ile	Thr	Val	
				155					160					165	
Leu	Asp	Asp	Gly	Leu	Glu	Trp	Asn	His	Thr	Asp	Ile	Tyr	Ala	Asn	
				170					175					180	
Tyr	Asp	Pro	Glu	Ala	Ser	Tyr	Asp	Phe	Asn	Asp	Asn	Asp	His	Asp	
				185					190					195	
Pro	Phe	Pro	Arg	Tyr	Asp	Leu	Thr	Asn	Glu	Asn	Lys	His	Gly	Thr	
				200					205					210	
Arg	Cys	Ala	Gly	Glu	Ile	Ala	Met	Gln	Ala	Asn	Asn	His	Lys	Cys	
				215					220					225	
Gly	Val	Gly	Val	Ala	Tyr	Asn	Ser	Lys	Val	Gly	Gly	Ile	Arg	Met	
				230					235					240	

FIG. 3B

Leu	Asp	Gly	Ile	Val	Thr	Asp	Ala	Ile	Glu	Ala	Ser	Ser	Ile	Gly	245	250	255
Phe	Asn	Pro	Gly	His	Val	Asp	Ile	Tyr	Ser	Ala	Ser	Trp	Gly	Pro	260	265	270
Asn	Asp	Asp	Gly	Lys	Thr	Val	Glu	Gly	Pro	Gly	Arg	Leu	Ala	Gln	275	280	285
Lys	Ala	Phe	Glu	Tyr	Gly	Val	Lys	Gln	Gly	Arg	Gln	Gly	Lys	Gly	290	295	300
Ser	Ile	Phe	Val	Trp	Ala	Ser	Gly	Asn	Gly	Gly	Arg	Gln	Gly	Asp	305	310	315
Asn	Cys	Asp	Cys	Asp	Gly	Tyr	Thr	Asp	Ser	Ile	Tyr	Thr	Ile	Ser	320	325	330
Ile	Ser	Ser	Ala	Ser	Gln	Gln	Gly	Leu	Ser	Pro	Trp	Tyr	Ala	Glu	335	340	345
Lys	Cys	Ser	Ser	Thr	Leu	Ala	Thr	Ser	Tyr	Ser	Ser	Gly	Asp	Tyr	350	355	360
Thr	Asp	Gln	Arg	Ile	Thr	Ser	Ala	Asp	Leu	His	Asn	Asp	Cys	Thr	365	370	375
Glu	Thr	His	Thr	Gly	Thr	Ser	Ala	Ser	Ala	Pro	Leu	Ala	Ala	Gly	380	385	390
Ile	Phe	Ala	Leu	Ala	Leu	Glu	Ala	Asn	Pro	Asn	Leu	Thr	Trp	Arg	395	400	405
Asp	Met	Gln	His	Leu	Val	Val	Trp	Thr	Ser	Glu	Tyr	Asp	Pro	Leu	410	415	420
Ala	Ser	Asn	Pro	Gly	Trp	Lys	Lys	Asn	Gly	Ala	Gly	Leu	Met	Val	425	430	435
Asn	Ser	Arg	Phe	Gly	Phe	Gly	Leu	Leu	Asn	Ala	Lys	Ala	Leu	Val	440	445	450
Asp	Leu	Ala	Asp	Pro	Arg	Thr	Trp	Arg	Asn	Val	Pro	Glu	Lys	Lys	455	460	465
Glu	Cys	Val	Val	Lys	Asp	Asn	Asn	Phe	Glu	Pro	Arg	Ala	Leu	Lys			

FIG. 3C

Ala	Asn	Gly	Glu	Val	Ile	Val	Glu	Ile	Pro	Thr	Arg	Ala	Cys	Glu
				485					490					495
Gly	Gln	Glu	Asn	Ala	Ile	Lys	Ser	Leu	Glu	His	Val	Gln	Phe	Glu
				500					505					510
Ala	Thr	Ile	Glu	Tyr	Ser	Arg	Arg	Gly	Asp	Leu	His	Val	Thr	Leu
				515					520					525
Thr	Ser	Ala	Val	Gly	Thr	Ser	Thr	Val	Leu	Leu	Ala	Glu	Arg	Glu
				530					535					540
Arg	Asp	Thr	Ser	Pro	Asn	Gly	Phe	Lys	Asn	Trp	Asp	Phe	Met	Ser
				545					550					555
Val	His	Thr	Trp	Gly	Glu	Asn	Pro	Val	Gly	Thr	Trp	Thr	Leu	Lys
				560					565					570
Ile	Thr	Asp	Met	Ser	Gly	Arg	Met	Gln	Asn	Glu	Gly	Arg	Ile	Val
				575					580					585
Asn	Trp	Lys	Leu	Ile	Leu	His	Gly	Thr	Ser	Ser	Gln	Pro	Glu	His
				590					595					600
Met	Lys	Gln	Pro	Arg	Val	Tyr	Thr	Ser	Tyr	Asn	Thr	Val	Gln	Asn
				605					610					615
Asp	Arg	Arg	Gly	Val	Glu	Lys	Met	Val	Asn	Val	Val	Glu	Lys	Arg
				620					625					630
Pro	Thr	Gln	Lys	Ser	Leu	Asn	Gly	Asn	Leu	Leu	Val	Pro	Lys	Asn
				635					640					645
Ser	Ser	Ser	Ser	Asn	Val	Glu	Gly	Arg	Arg	Asp	Glu	Gln	Val	Gln
				650					655					660
Gly	Thr	Pro	Ser	Lys	Ala	Met	Leu	Arg	Leu	Leu	Gln	Ser	Ala	Phe
				665					670					675

[illegible][illegible]

FIG. 4A

Met	Glu	Gly	Gly	Cys	Gly	Ser	Gln	Trp	Lys	Ala	Ala	Gly	Phe	Leu	1	5	10	15
Phe	Cys	Val	Met	Val	Phe	Ala	Ser	Ala	Glu	Arg	Pro	Val	Phe	Thr	20	25	30	35
Asn	His	Phe	Leu	Val	Glu	Leu	His	Lys	Asp	Gly	Glu	Glu	Ala	Ala	40	45	50	55
Arg	Gln	Val	Ala	Ala	Glu	His	Gly	Phe	Gly	Val	Arg	Lys	Leu	Pro	60	65	70	75
Phe	Ala	Glu	Gly	Leu	Tyr	His	Phe	Tyr	His	Asn	Gly	Leu	Ala	Lys	80	85	90	95
Ala	Lys	Arg	Arg	Arg	Ser	Leu	His	His	Lys	Arg	Gln	Leu	Glu	Arg	100	105	110	115
Asp	Pro	Arg	Ile	Lys	Met	Ala	Leu	Gln	Gln	Glu	Gly	Phe	Asp	Arg	120	125	130	135
Lys	Lys	Arg	Gly	Tyr	Arg	Asp	Ile	Asn	Glu	Ile	Asp	Ile	Asn	Met	140	145	150	155
Asn	Asp	Pro	Leu	Phe	Thr	Lys	Gln	Trp	Tyr	Leu	Phe	Asn	Thr	Gly	160	165	170	175
Gln	Ala	Asp	Gly	Thr	Pro	Gly	Leu	Asp	Leu	Asn	Val	Ala	Glu	Ala	180	185	190	195
Trp	Glu	Leu	Gly	Tyr	Thr	Gly	Lys	Gly	Val	Thr	Ile	Gly	Ile	Met	200	205	210	215

FIG. 4B

Asp Asp Gly Ile Asp	Tyr Leu His Pro Asp Leu Ala Tyr Asn Tyr	170	175	180
Asn Ala Asp Ala Ser	Tyr Asp Phe Ser Ser Asn Asp Pro Tyr Pro	185	190	195
Tyr Pro Arg Tyr Thr	Asp Asp Trp Phe Asn Ser His Gly Thr Arg	200	205	210
Cys Ala Gly Glu Val	Ser Ala Ala Ser Asn Asn Ile Cys Gly	215	220	225
Val Gly Val Ala Tyr	Asn Ser Lys Val Ala Gly Ile Arg Met Leu	230	235	240
Asp Gln Pro Phe Met	Thr Asp Ile Ile Glu Ala Ser Ser Ile Ser	245	250	255
His Met Pro Gln Leu	Ile Asp Ile Tyr Ser Ala Ser Trp Gly Pro	260	265	270
Thr Asp Asn Gly Lys	Thr Val Asp Gly Pro Arg Glu Leu Thr Leu	275	280	285
Gln Ala Met Ala Asp	Gly Val Asn Lys Gly Arg Gly Lys Gly	290	295	300
Ser Ile Tyr Val Trp	Ala Ser Gly Asp Gly Gly Ser Tyr Asp Asp	305	310	315
Cys Asn Cys Asp Gly	Tyr Ala Ser Ser Met Trp Thr Ile Ser Ile	320	325	330

FIG.4C

Asn Ser Ala Ile Asn Asp Gly Arg Thr Ala Leu Tyr Asp Glu Ser	335	340	345
Cys Ser Ser Thr Leu Ala Ser Thr Phe Ser Asn Gly Arg Lys Arg	350	355	360
Asn Pro Glu Ala Gly Val Ala Thr Thr Asp Leu Tyr Gly Asn Cys	365	370	375
Thr Leu Arg His Ser Gly Thr Ser Ala Ala Pro Glu Ala Ala	380	385	390
Gly Val Phe Ala Leu Ala Leu Glu Ala Asn Leu Asp Leu Thr Trp	395	400	405
Arg Asp Met Gln His Leu Thr Val Leu Thr Ser Lys Arg Asn Gln	410	415	420
Leu His Asp Glu Val His Gln Trp Arg Arg Asn Gly Val Gly Leu	425	430	435
Glu Phe Asn His Leu Phe Gly Tyr Gly Val Leu Asp Ala Gly Ala	440	445	450
Met Val Lys Met, Ala Lys Asp Trp Lys Thr Val Pro Glu Arg Phe	455	460	465
His Cys Val Gly Gly Ser Val Gln Asn Pro Glu Lys Ile Pro Pro	470	475	480
Thr Gly Lys Leu Val Leu Thr Leu Lys Thr Asn Ala Cys Glu Gly	485	490	495

Lys Glu Asn Phe Val Arg Tyr Leu Glu His Val Gln Ala Val Ile
500 505 510

Thr Val Asn Ala Thr Arg Arg Gly Asp Leu Asn Ile Asn Met Thr
515 520 525

Ser Pro Met Gly Thr Lys Ser Ile Leu Leu Ser Arg Arg Pro Arg
530 535 540

Asp Asp Asp Ser Lys Val Gly Phe Asp Lys Trp Pro Phe Met Thr
545 550 555

Thr His Thr Trp Gly Glu Asp Ala Arg Gly Thr Trp Thr Leu Glu
560 565 570

Leu Gly Phe Val Gly Ser Ala Pro Gln Lys Gly Leu Leu Lys Glu
575 580 585

Trp Thr Leu Met Leu His Gly Thr Gln Ser Ala Pro Tyr Ile Asp
590 595 600

Gln Val Val Arg Asp Tyr Gln Ser Lys Leu Ala Met Ser Lys Lys
605 610 615

Gln Glu Leu Glu Glu Glu Glu Leu Asp Glu Ala Val Glu Arg Ser Leu
620 625 630

Gln Ser Ile Leu Arg Lys Asn
637

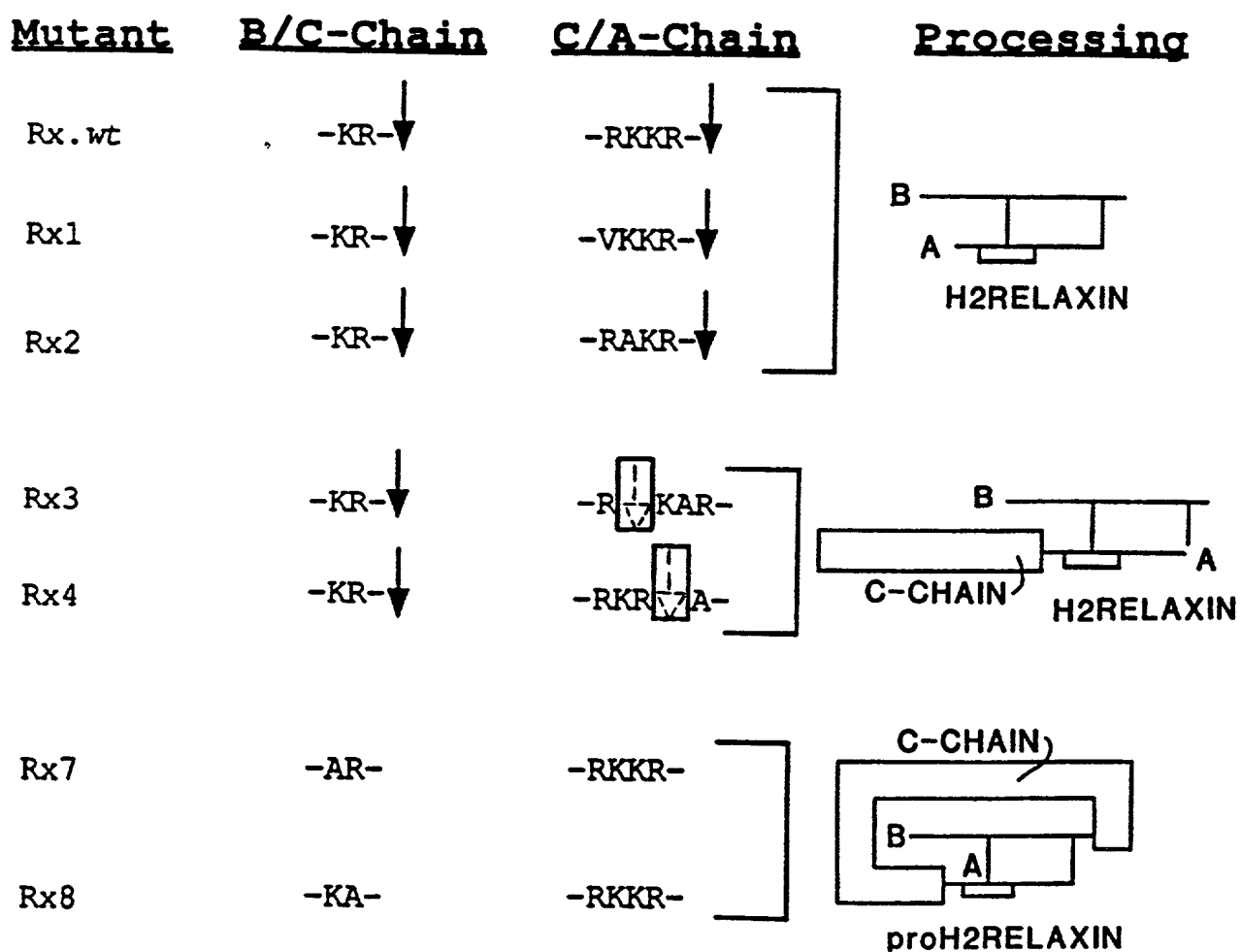
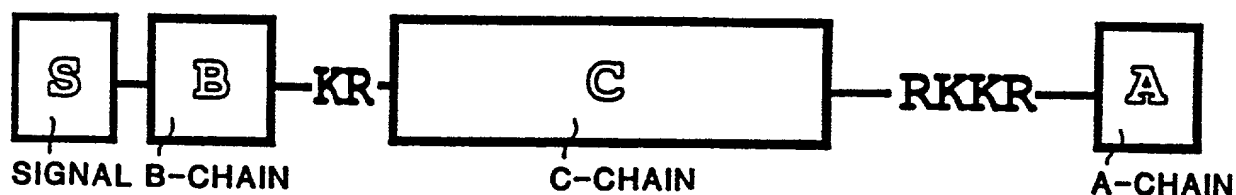


FIG. 5